

IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121.

1.-11. (canceled)

12. (original) A method for generating a variance map from measured projection data acquired from a tomography system comprising:
accessing the measured projection data from the tomography system;
formulating a variance measure based upon the measured projection data; and
generating the variance map from the variance measure using a reconstruction algorithm.

13. (original) The method of claim 12, comprising determining variability of a mean pixel value caused by noise factors and artifact factors associated with the measured projection data based upon the variance measure.

14. (original) The method of claim 12, wherein formulating a variance measure is based on a statistical model.

15. (original) The method of claim 12, wherein the reconstruction algorithm is a weighted filtered backprojection reconstruction algorithm.

16. (original) The method of claim 12, wherein the reconstruction algorithm is a fast reconstruction algorithm such as a Fourier-based algorithm, a hierarchical algorithm, or a coarse reconstruction based on downsampled projection data and/or image data.

17. (original) The method of claim 15, wherein the reconstruction algorithm is adapted to operate on the variance measure to generate the variance map.

18. (original) The method of claim 12 further comprises displaying, analyzing or processing the variance map.

19. (original) The method of claim 12, wherein the measured projection data is reconstructed to generate original image data and wherein the original image data is displayed or analyzed based upon or in conjunction with the variance map.

20. (original) The method of claim 12, further comprising identifying features of interest in the original image data based upon the variance map.

21. (original) A method for generating a variance map from measured projection data acquired from a tomography system comprising:
accessing the measured projection data from the tomography system;
formulating a variance measure based upon the measured projection data;
generating the variance map based upon the variance measure using a reconstruction algorithm; and
displaying analyzing or processing the variance map.

22. (original) The method of claim 21, comprising determining variability of a mean pixel value caused by noise factors and artifact factors associated with the measured projection data based upon the variance measure.

23. (original) The method of claim 21, wherein formulating a variance is based upon a statistical model.

24. (original) The method of claim 21, wherein the reconstruction algorithm is a weighted filtered backprojection reconstruction algorithm.

25. (original) The method of claim 24, wherein the reconstruction algorithm is adapted to operate on the variance measure to generate the variance map.

26. (original) The method of claim 21, wherein the measured projection data is reconstructed to generate original image data and wherein the original image data is displayed analyzed or processed based upon the variance map.

27. (original) The method of claim 21, further comprising identifying features of interest in the original image data based upon the variance map.

28. (original) A tomography system for generating a variance map from measured projection data comprising:

an X-ray source configured to project a plurality of X-ray beams through an object;

a detector configured to produce a plurality of electrical signals in response to received X-ray beams from the source; and

a processor configured to process the plurality of electrical signals to generate measured projection data, wherein the processor is further configured to access the measured projection data from the tomography system; to formulate a variance measure based upon the measured projection data; to generate a variance map based upon the variance measure using a reconstruction algorithm; and to display, analyze or process the variance map.

29. (original) At least one computer-readable medium storing computer instructions for instructing a computer system for generating a variance map from projection data acquired from a tomography system, the computer instructions comprising:

- accessing the projection data from the tomography system;
- generating a variance map from the projection data; and
- displaying analyzing or processing the variance map.

30. (original) A tomography system for generating a variance map from measured projection data comprising:

- means for accessing the measured projection data from the tomography system;
- means for formulating a variance measure based upon the measured projection data;
- means for generating the variance map based upon the variance measure using a reconstruction algorithm; and
- means for displaying analyzing or processing the variance map

31.-40. (canceled)